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UNCLASSIFIED

PRUCESSING DATE--300CT70

TITLE-INFRARED SPECTRA AND STRUCTURE OF 5. SUBSTITUTED

AUTHOR-(02)-TSURKAN, A.A., TSURKAN, T.S.

COUNTRY OF INFO-USSR

SCURCE--FARM. ZH. (KIEV) 1970, 25(1), 30-3

DATE PUBLISHED ----- 70

SUBJECT AREAS-CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS-IR SPECTRUM, IR SPECTROSCOPY, TAUTOMERISM, SULFANILAMIDE

CONTROL MARKING-NO RESTRICTIONS

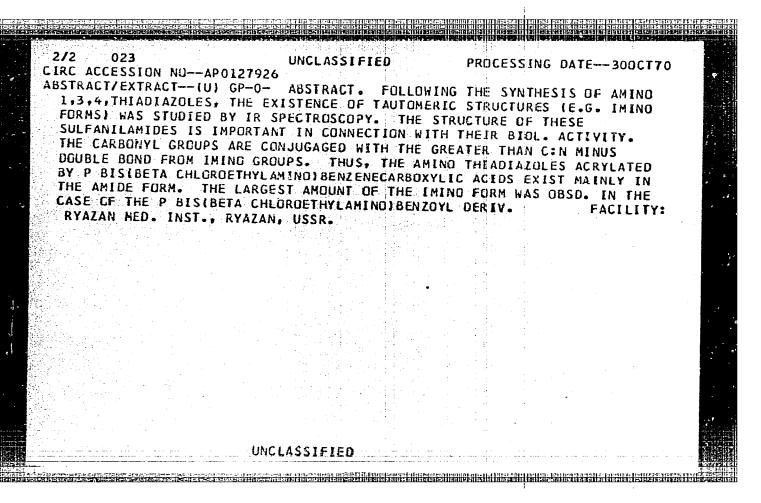
PROXY REEL/FRAME--3002/0345

STEP NO--UR/0491/70/025/001/0030/0033

CIRC ACCESSION NO--AP0127926

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410004-5"



1/2 018
TITLE--ELECTRICAL PROPERTIES OF ZINC TELLURIDE EMISSIVE DIODES -U
AUTHOR--TSURKAN, A.YE.

COUNTRY OF INFO--USSR

SOURCE--TR. KISHINEVSK. POLITEKHN. IN-T (WORKS OF THE KISHINEV REFERENCE--RZH, ELEKTRONIKA I YEYE PRIMENENIYE, NO 3, MAR 70, ABSTRACT NO DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ELECTRIC PROPERTY, ZINC TELLURIDE, SEMICONDUCTOR DIODE, PN

JUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1991/0553

STEP NO--UR/0000/70/000/012/0039/0046

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410004-5"

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CIRC ACCESSION NO--AR0110360

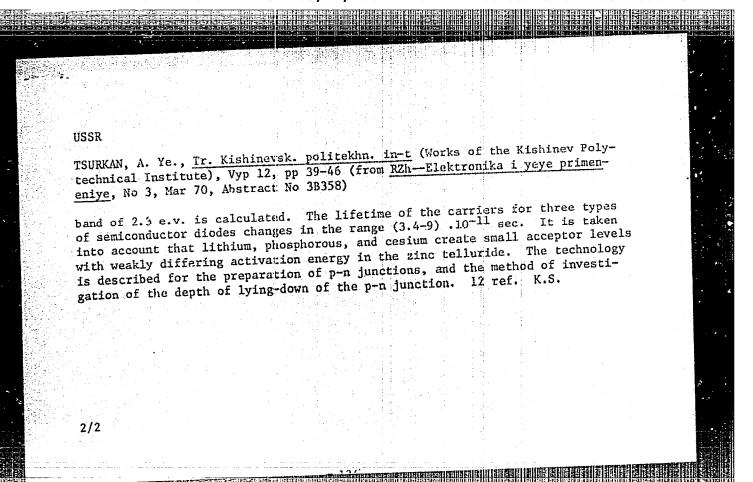
2/2 018 UNCLASSIFIED CIRC ACCESSION NO--AROLLO360 PROCESSING DATE--160CT70 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER EXPERIMENTALLY INVESTIGATES THE DEPENDENCE OF THE ELECTRICAL CHARACTERISTICS OF SEMICONDUCTOR DIODES OF ZINC TELLURIDE, DOPED WITH TELLURIUM, CESIUM, LITHIUM, AND PHOSPHOROUS, ON THE PHYSICAL AND CHEMICAL PROPERTIES OF THE CRYSTALS. THE VOLTAGE CURRENT CHARACTERISTICS AND THE DEPENDENCE OF THE CAPACITANCE OF THE P-N JUNCTION ON THE VOLTAGE ARE PLOTTED. AN INCREASE OF THE IMPURITY CONCENTRATION LEADS TO A DECREASE OF THE CURRENT DURING REVERSE BIAS. THE CHARACTERISTIC DEPENDENCE OF THE JUNCTION CAPACITANCE ON THE MAGNITUDE OF THE FORWARD BIAS VOLTAGE UP TO A VALUE OF 0.5 VOLT DOES NOT REVEAL AN EXPOTENTIAL CHARACTER OF THE CAPACITANCE GROWTH. ON THIS BASIS THE CONCLUSION IS MADE THAT UP TO A VOLTAGE OF 0.5 VOLT THE DIFFUSION CAPACITANCE DIO NOT APPEAR. IN TERMS OF THE EXPERIMENTAL DEPENDENCE OF THE FORM OF THE VOLTAGE CURRENT CHARACTERISTICS ON THE TEMPERATURE, A WIDTH OF THE FORBIDDEN BAND OF 2.3 E.V. IS CALCULATED. THE LIFETIME OF THE CARRIERS FOR THREE TYPES OF SEMICONDUCTOR DIDDES CHANGES IN THE RANGE (3.4-9) . 10 PRIME NEGATIVELL SEC. IT IS TAKEN INTO ACCOUNT THAT LITHIUM, PHOSPHOROUS, AND CESIUM CREATE SMALL ACCEPTOR LEVELS WITH WEAKLY DIFFERING ACTIVATION ENERGY IN THE ZINC TELLURIDE. THE TECHNOLOGY IS DESCRIBED FOR THE PREPARATION OF P-N JUNCTIONS, AND THE METHOD OF INVESTIGATION OF THE DEPTH OF LYING DOWN OF THE P-N JUNCTION.

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	com the vapor phase by ystallization method ure of sinc or solv, by rearriful rhe method recombility of groveh who direction of 110 to 110 has been deen of one wars of the component and (111 2n. The greatest of one wars of the predentiant like the predentiant l	SINGLE CRYSTALS OF Z	(v)

UDC 621.383.46 USSR "Electrical Properties of Zinc Telluride Emissive Diodes" Tr. Kishinevsk. politekhn. in-t (Works of the Kishinev Polytechnical Institute), Vyp 12, pp 39-46 (from RZh-Elektronika i yeye primeneniye, No 3, Mar 70, Translation: The paper experimentally investigates the dependence of the electrical characteristics of semiconductor diodes of zinc telluride, doped with tellurium, cesium, lithium, and phosphorous, on the physical and chemical properties of the crystals. The voltage-current characteristics and the dependence of the capacitance of the p-n junction on the voltage are plotted. An increase of the impurity concentration leads to a decrease of the current during reverse bias. The characteristic dependence of the junction capacitance on the magnitude of the forward bias voltage up to a value of 0.5 volt does not reveal an exponential character of the capacitance growth. On this basis the conclusion is made that up to a voltage of 0.5 volt the diffusion capacitance did not appear. In terms of the experimental dependence of this form of the voltage-current characteristics on the temperature, a width of the forbidden 1/2



#### Epidemiology

UDC 619:616.981.51

USSR

M. A., and POMIRKO, T. I., Veterinary Administration, Ministry of TSURKAN. Agriculture, Moldavian SSR

"Natural Foci of Anthrax"

Moscow, Veterinariya, No 10, Oct 70, pp 57-58

Abstract: Anthrax has long been a common disease among cattle in the Moldavian SSR. Although the veterinary service is very active, many cases are still reported annually. The spread of the anthrax pathogen from previously infected areas and the appearance of new foci are due largely to the presence of humus-rich chernozem, the abundance of precipitation, and high temperatures. Some 64% of all cases of the disease in the republic occur in the northern forest-steppe zone, which occupies 44% of the total area. The predominant soil is chernozem, with some dark-gray forest soils. The central forest zone, which makes up 18% of the total area, is the site of about 8% of the cases. Gray and brown forest soils predominate along with some leached chernozem. The fewest cases of anthrax (28%) are reported in the southern and southeastern steppe zone, which embraces 40% of the total area. Ordinary, calcareous, and southern characrem are the main soils in this zone. 1/1

UNCLASSIFIED PROCESSING DATE-300CT70

2.AMINO.1.3.4.THIADIAZOLE DERIVATIVES -UAUTHOR-(02)-TSURKAN, A.A., TSURKAN, T.S.

COUNTRY OF INFO-USSR

SGURCE--FARM. ZH. (KIEV) 1970, 25(1), 30-3

DATE PUBLISHED----70

SUBJECT AREAS—CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS—IR SPECTRUM, IR SPECTRUSCOPY, TAUTOMERISM, SULFANILAMIDE

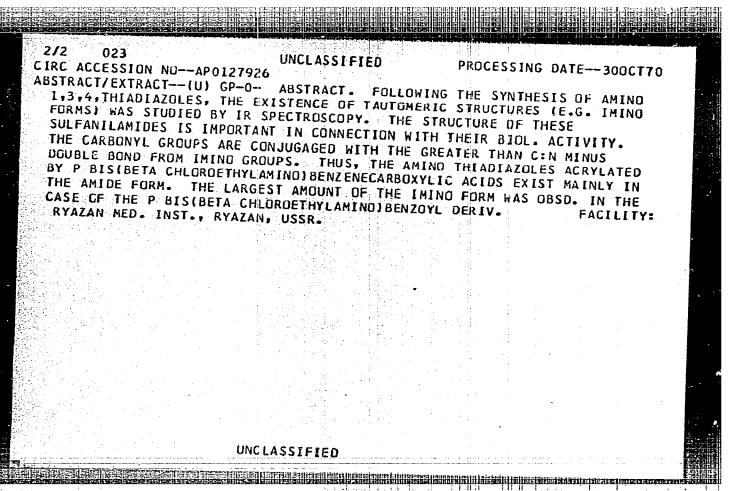
CONTROL MARKING-NO RESTRICTIONS

PROXY REEL/FRAME--3002/0345

STEP NO--UR/0491/70/025/001/0030/0033

CIRC ACCESSION NO-AP0127926

UNCLASSIFIED



USSR

UDC 539.3

KULIYEV, G. G., TSURPAL, I. A., Kiev

"Stressed State of a Nonlinear-Elastic Plate with a Fastened Round Hole"

Kiev, Prikladnaya Mekhanika, Vol VII, No 4, 1971, pp 118-121

Abstract: The basic equations, boundary conditions and junction conditions are formulated for a nonlinear (cubic) law of the relation between the stresses and strains for the case of attaching circular holes by wide rings (generally speaking made of a different physically nonlinear material) in nonlinear-elastic plates. The nonlinear equations obtained are solved by the small parameter method. The problem of stress concentration near the solder in a nonlinear-elastic plate with pure shear at infinity is investigated as an example. The effect of the rigidity of the wide ring, the external load and the physical nonlinearity on the stress distribution in the plate with a round hole is demonstrated.

1/1

## Radiation Chemistry

USSR

ШС 628.543.661.7

TSUTSARIN, V. V., BYALKOVSKIY, N. N., YATSUN, V. V., ZHIKHAREV, V. S., and VYSOTSKAYA, N. A., Institute of Physical Chemistry, Academy of Sciences UkrSSR, Chemical-Pharmaceutical Plant imeni Lomonosov

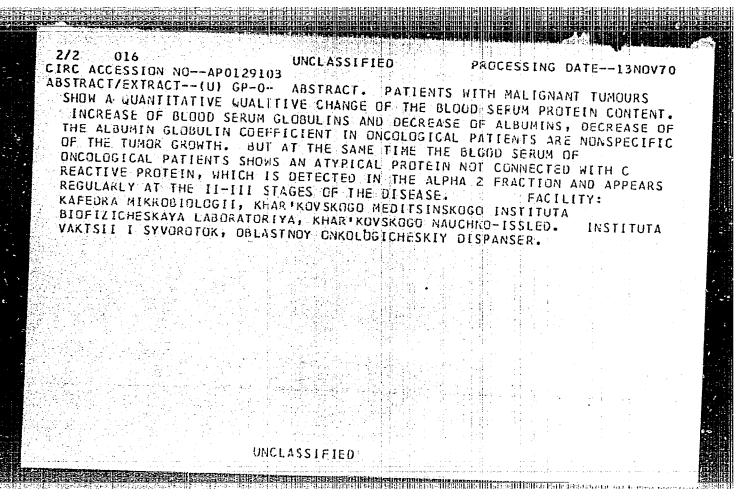
"Changes in the Oxidizeability of Aqueous Solutions of Some Organic Katerials
Due to the Action of Radiation"

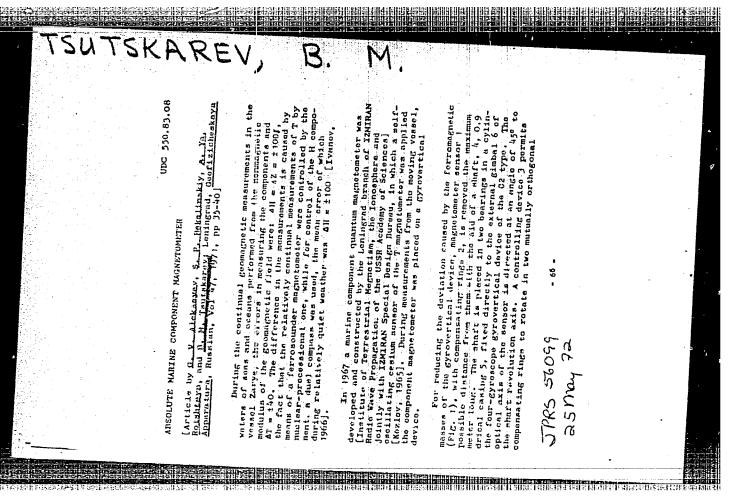
Kiev, Khimicheskaya Tekhnologiya, No 3 (57), May-Jun 71, pp 12-15

Abstract: Oxidizeability characterizes total content of the reducing agents in water. It is expressed by the amount of oxygen needed for the oxidation of organic material contained in 1 1 of solution to CO<sub>2</sub> and water. Changes

of this oxidizeability in waste waters of the Kiev Chemical-Pharmaceutical Plant taking place upin / -irradiation with a Co<sup>60</sup> source were studied. These waters contain about 30 inorganic impurities and 70 of the organic nature. In addition, model systems containing methanol, isopropyl alcohol, phenol, metacrylic acid, and their mixtures were investigated. Irradiation precipitates. The model system showed more pronounced lowering of the oxidizeability than natural waste waters, because the latter nost probably 1/1

UNCLASSIFIED TITLE--CHANGES OF BLOOD SERUM PROTEIN FRACTIONS IN PATIENTS WITH MALIGNANT PROCESSING DATE--13NOV70 AUTHOR-1051-TSUTSAYEVA. A.A., LOBASENKO, N.P., LYSENKO, A.I., ROZINOV, L.P., KHARCHENKO, V.F. COUNTRY OF INFO--USSK SOURCE--VRACHEBNOYE DELO, 1970, NR 5, PP 99-101 DATE PUBLISHED ---- 70 SUBJECT AREAS -- BIDLOGICAL AND MEDICAL SCIENCES TOPIC TAGS--NEOPLASM, BLOOD SERUM, BLOOD PROTEIN CONTROL MARKING--NO RESTRICTIONS DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--3002/1735 STEP NO--UR/0475/70/000/005/0099/0101 CIRC ACCESSION NO--APO129103 UNCLASSIFIED. 





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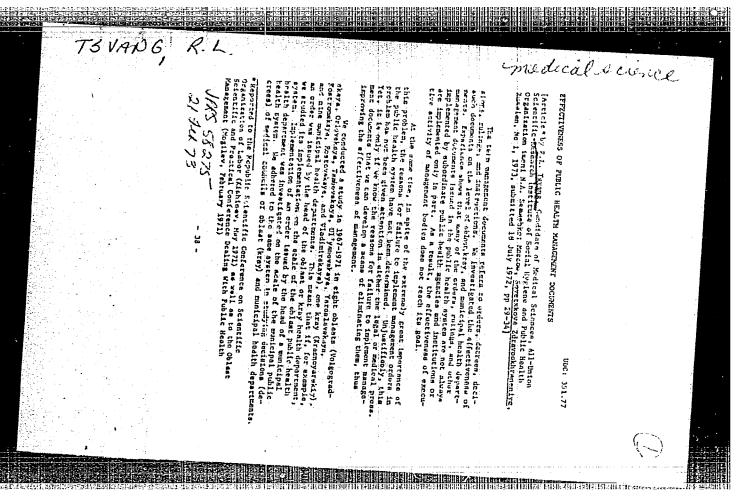
UDC: 539.4.015.1

SOLIN, Yu. V., RCZHKOV, B. G., and TSVELEV, E. A., Engineers

"Controlling Layer Shifts in the Manufacture of Multilayer Printed Circuit Plates by the Open Contact Area Process"

Moscow, Pribory i sistemy upravleniya, No. 10, 1970, p 54

Abstract: The open contact area method is now used in many enterprises in the Soviet Union. Since the printed circuit layers are glued together in manufacture, one above the other, open areas must be allowed between layers for the insertion of leads to contact points within the printed circuit block. The purpose of this tact points within the printed circuit block. The purpose of this this type of construction involves. Such requirements also inthis type of construction involves. Such requirements also inlayers to avoid arcing between leads or between layer components. A table of the recommended dimensions of the various structural characteristics of the layer blocks is given together with a second table listing the minimum distances required to separate leads carrying different voltages. A photomicrograph of a section of the multilayer printed-circuit block is reproduced.



1/2 019
TITLE—THO LONG PERIODS IN UNDRIENTED POLYETHYLENE -U
AUTHOR—ALKSNE, K., GERASIMOV, V.I., TSYANKIN, D.YA.

COUNTRY OF INFO—USSR

SOURCE—VYSOKOMOL. SOEDIN., SER. B 1970, 12(2) 139-42

DATE PUBLISHED———70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—POLYETHYLENE, MACROMOLECULE, X RAY PHOTOGRAPHY, X RAY

DIFFRACTION, POLYMER STRUCTURE

CONTROL MARKING—NO RESTRICTIONS

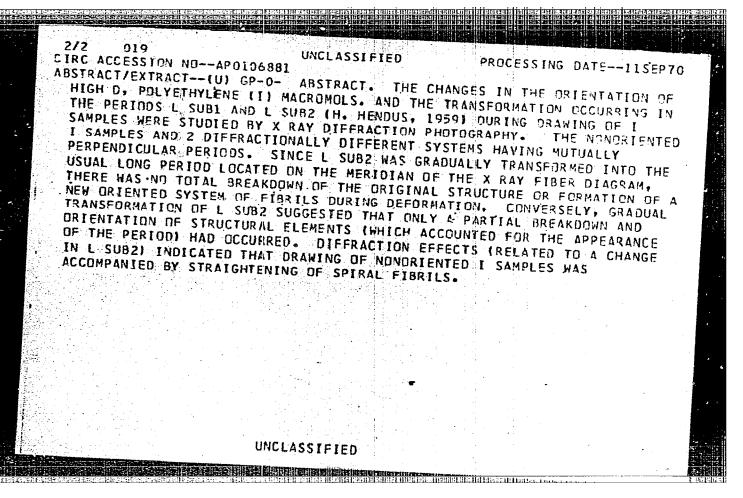
DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—1989/0225

STEP NO—UR/0460/70/012/002/0139/0142

CIRC ACCESSION NO—APO106881

UNCLASSIFIED



1/2 018 TITLE--X RAY DIFFRACTION STUDIES OF SECONDARY CRYSTALLIZATION IN A SERIES PROCESSING DATE--160CTTO AUTHOR-(03)-MOSKALENKO, V.A., TSVANKIN, D.YA., GALILOGLY, F.A.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN. SER. A 1970, 12(3), 548-52

DATE PUBLISHED-----70

SUBJECT AREAS -- MATERIALS

TOPIC TAGS--X RAY DIFFRACTION STUDY, CRYSTALLIZATION, SILOXANE, SYNTHETIC RUBBER/(U) SKTV POLYSILOXANE RUBBER, (U) SKT POLYSKLOXANE RUBBER, (U) SKTE POLYSILOXANE RUBBER, (U)SKTVF 803 POLYSILOXANE RUBBER

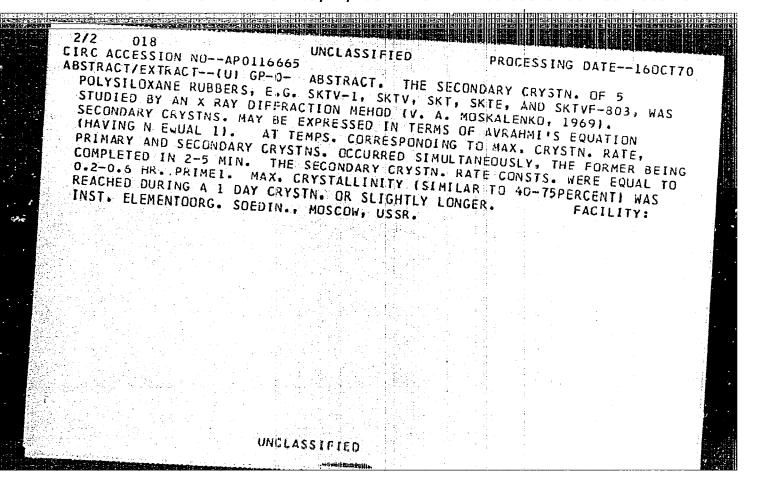
CONTROL MARKING--NO RESTRICTIONS

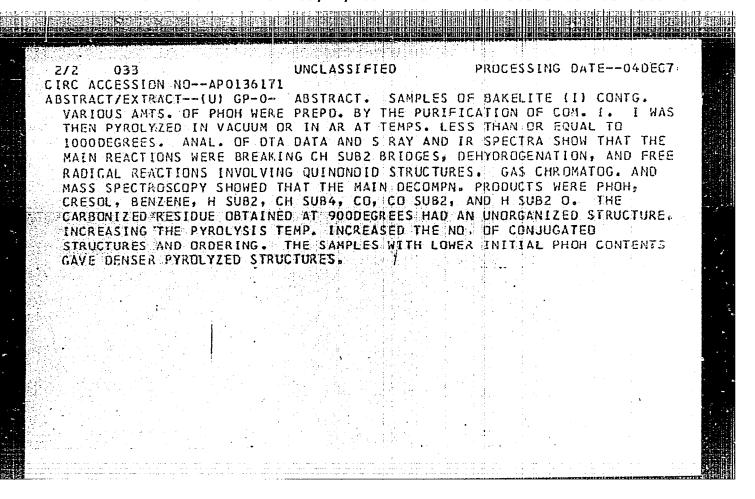
DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1995/1200

STEP NO--UR/0459/70/012/003/0548/0552

CIRC ACCESSION NO--APO116665

UNCLASSIFIED





USSR **)**, -

UDC 535.343

TSVELVKH. N. C., TSENDROVSKIY, V. A., imeni T. G. Sevchenko) (Kiev State University

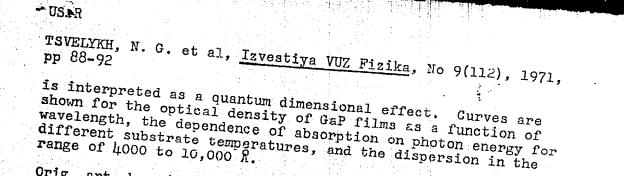
"The Width of the Forbidden Zone and the Optical Properties of Thin Films of Gallium Phosphide"

Tomsk, Izvestiya VUZ Fizika (News of the Higher Educational Institutions, Physics), No 9(112), 1971, pp 88-92

Vacuum-deposited gallium phosphide films (100-5000 Å thick) are studied to determine the temperature dependence of the width of the forbidden zone and the effects of film thickness. Dispersion is measured in the visible spectrum.

The substrates used were glass, quartz, and NaCl monocrystals. The optical width of the forbidden zone decreases with temperature. This effect is most pronounced for quartz and least for glass and is likely due to distortion of the film when the substrate expands with heat. The width increases with decrease in film thickness inversely as the square of the thickness. This

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Orig. art. has 5 figs. and 13 refs.

2/2

- 16 -

USSR

UDC: 534.113:624.042.8

TSVENIASHVILI, D. Kh., KARAMYSHKIN, V. V., Moscow

"Dynamic Stability of Schematic Cantilever Under the Influence of a Tracking, Pulsating Load"

Kiev, Prikladnaya Mekhanika, Vol 6, No 11, 1970, pp 134-137

Abstract: The dynamic stability of a cantilever beam with a concentrated mass at the free end is studied under the influence of a tracking, harmonic load. The differential equation of motion considering the inertia of rotation of the load is solved by the method of expansion into trigonometric series. Expressions are produced for the construction of the areas of dynamic instability and it is demonstrated that the inertia of rotation of the load worsens the dynamic stability of the rod.

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#### Oncology

USSR

UCC 576.5

LAGIDZE, R. M., LAGIDZE, D. R., TSVENTASHVILL V. Sh., and KOPALADZE, R. A., Institute of Experimental and Clinical Surgery, Ministry of Health GSSR

"Half-Wave Potentials ( arphi 1/2) and Biological Activity of Some Antitumor Compounds"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 58, No 1, Apr 70, pp 217-

Translation: Compounds which differ considerably in their chemical structure frequently exhibit similar physiological activity. This leads to the speculation that it might be possible to find some similarities in their ultrafine structures by means of modern physical methods. Wright and Sere have reported interesting facts on this type of relationship for a specific group of redolant substances. In this connection, we believe that various compounds with antitumor activity should also exhibit some common physical properties. Application of the results of spectroscopic studies, polarography, and other physical research methods, for this purpose may prove to be a promising lead in an approach to a more rational selection of new antitumor agents from arong the tremendous number of organic compounds and studies investigating the relationship between the hydrolysis rate of certain groups of alkylating compounds and their antitumor activity, no other physical

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USSR

LAGIDZE, R. M., et al., Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 58, No 1, Apr 70, pp 217-220

methods have been used for such purposes to any extent. All this also pertains to some extent to the polarographic studies of antitumor compounds.

Z. V. Pushkareva and her coworkers determined the half-wave potentials of a large group of nitrogen mustaris with aliphatic, aromatic, and heterocyclic carriers. Having investigated the nature of the reduction and hydrolysis processes of these compounds, they proposed reaction mechanisms for their conversions. It was shown that the  $\mathcal{G}$  1/2 of these compounds is constant in a wide range (from -0.97 to -1.42 volts with a saturated calomel reference electrode). A polarographic technique was also successfully used in a quantitative determination of ethylene immonium ions of N,N-di-(2-chloroethyl)-amines with aliphatic and aromatic groups.

We believe that valuable results could be obtained in this area from systematic studies of individual series of specific organic compounds, leading to elucidation of a relationship between their antitumor activity and minute structural changes and physical properties. It was shown in earlier studies that compounds of the 3-arylbutyl-N,N-di-(2-chloroethyl)-amine type are well suited for such studies. As a result of biological studies of these compounds, it has been established that their antitumor activity depends substantially on the nature, number, and position of the substituents in the aromatic nucleus. In the present paper, we report the 2/4

USSR

LAGIDZE, R. M., et al., Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 58, No 1, Apr 70, pp 217-220

results of polarographic determinations of 3-arylbutyl-N, N-di-(2-chloroethyl)-amines and 3-arylbutyl-2-chloroethylsulfides obtained earlier by R. M. Lagidze and his coworkers.

All of these compounds exhibit proven antitumor activity. The polarograms were determined on the LP-60 polarograph. The potentials were measured with a saturated aqueous calomel reference electrode. The  $\mathcal{P}_{1/2}$  values of these compounds are reported in a table. In contrast to the above compounds, 3-arylbutyl-2-chloroethyl sulfides are insoluble in water. Therefore their  $\mathcal{F}_{1/2}$  were determined in dry dimethyl formamide against 0.1 M LiClO4 and a 10-3 M concentration of the depolarizer. For comparison, the  $\mathcal{P}_{1/2}$  values of 3-arylbutyl-N,N-di-(2-chloroethyl)-amines obtained by us were also determined in dimethylformamide under identical conditions. It was shown that replacement of dimethylformamide with water had no effect on the  $\mathcal{P}_{1/2}$  value in this case.

Literature values of the  $\varphi_{1/2}$  for various antitumor agents are reported. The  $\varphi_{1/2}$  of 37 compounds studied by Z. V. Pushkareva and her coworkers are included. In spite of the small differences in the conditions under which the  $\varphi_{1/2}$  values were determined by various investigators, including some variations in the pH of the media, the results are in agreement with each other and with data  $\frac{1}{3}$ /4

USSR

IAGIDZE, R. M., et al., Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 58, No 1, Apr 70, pp 217-220

It is noteworthy that the  $\varphi_{1/2}$  interval for these various classes of anti-number agents is quite narrow, even though some of them are quite different from the standpoint of both their structural relationship and the polarography of their active groups. Obviously it should not be concluded from this fact that all compounds with the halfwave potentials, in the reported region will have antitumor activity. Furthermore, in many cases, for example with steroid hormones, the antitumor activity relates chosely to the hormonal activity. Nevertheless, it may be hoped that accumulation of a large amount of this type of experimental data, coupled with a thorough analysis of the data in relation to other physical properties, may generate a new complex of criteria for rational selection of new, effective antitumor agents.

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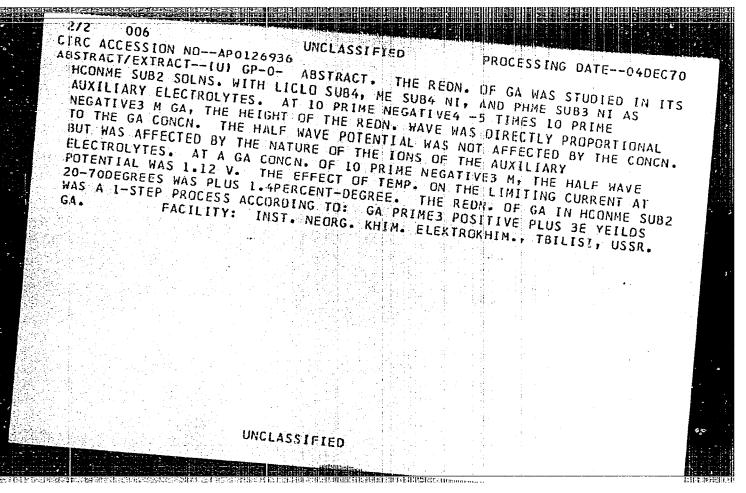
कतारको स्वाकार के मान्यकी कर है से विश्वास भी कथी में सिन्द है जो है कि सिन्द है अपने हैं कि सिन्द है कि सिन्द

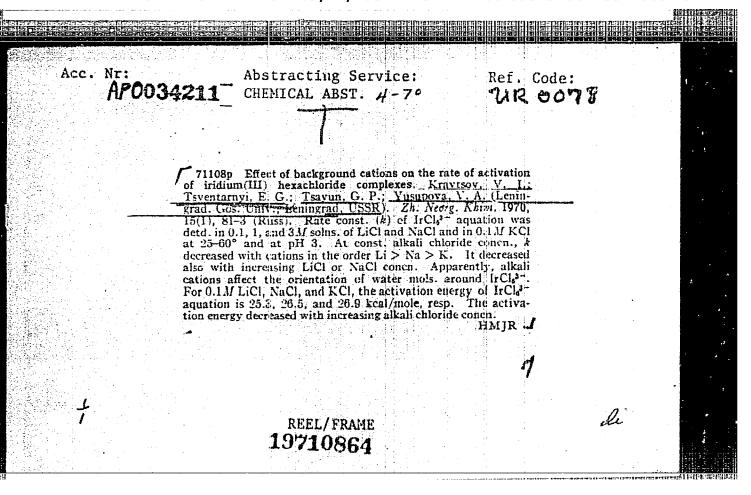
UNCLASSIFIED PROCESSING DATE--04DEC70 1/2 006 TITLE--POLAROGRAPHIC BEHAVIOR OF GALLIUM, III. IN A NONAQUEOUS MEDIUM -U-AUTHOR-103)-GAPRINDASHVILI, V.N., GVINEPADZE, D.S., TSVENIASHVILI, V.SH. COUNTRY OF INFO--USSR SOURCE-SOOBSHCH. AKAD. NAUK GRUZ. SSR 1970, 57(1), 85-8 DATE PUBLISHED----70 SUBJECT AREAS -- CHEMISTRY TOPIC TAGS-GALLIUM ELECTROLYTE, POLAROGRAPHY

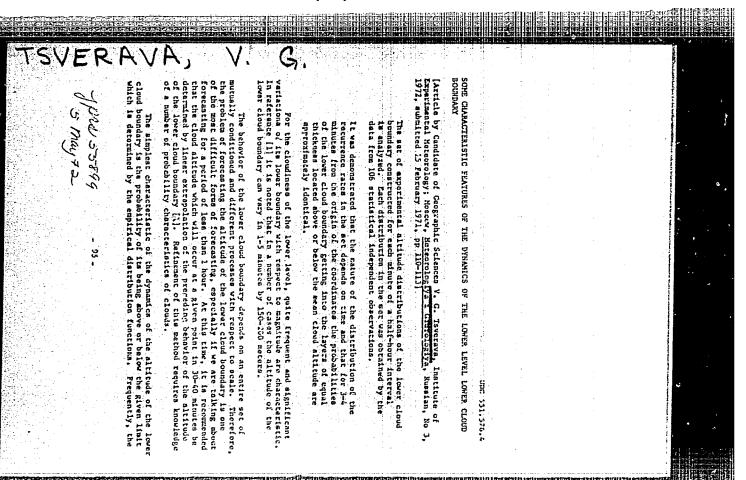
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--3001/1398 STEP NO--UR/0251/70/057/001/0085/0088

CIRC ACCESSION NO--APO126936 UNCLASSIFIED.







USSR

UDC 681.327.2

TSVETAYE, V. K.P., ANTONOV, V. N., KONDRAT'YEV, P. P., SHISHKIN, A. M., and FUFLYGIN, G. I., Moscow Power Institute

"Recording Device"

USSR Author's Certificate No 372557, kl C 06 f 3/14, filed 4 Jul 69, published 25 Apr 73 (from RZh Avtomatika Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 73, abstract No 11, A431P)

Translation: A device is proposed for recording, containing the following units arranged sequentially along one optical axis: a light scurce, system of controlling the light beam containing sequentially arranged polarizers, crystal blocks with controllable planes of polarization and an analyzer, an optical system, and an information carrier. To improve the speed, the crystals of the light beam control system contain openings corresponding to the shapes of the symbols to be recorded. Two illustrations.

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USSR

UDC: 681.327.12

TSVETAYEV, K. P. and NOGTIKOV, A. N.

"Device for Counting and Recognizing Symbols"

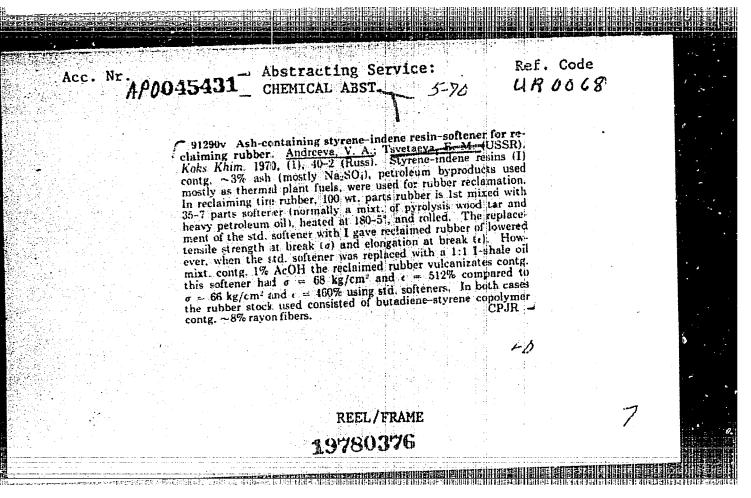
Moscow, Otkrytiva, Imobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 34, December 1971, p 151

Abstract: This invention contains a radiation source, an information carrier, and a receiver arranged in sequence along the optical axis and connected with a recognition block which, in turn, is connected to a coding and control block. To increase the speed of the device, a diaphragm block is added; it is connected to the recognition block output and placed between the information carrier and receiver. The diaphragm block contains a polarizer of potassium dihydrophosphate crystals and an optically connected analyzer. The recognition block contained switches which are used for selecting symbol groups through logic circuits.

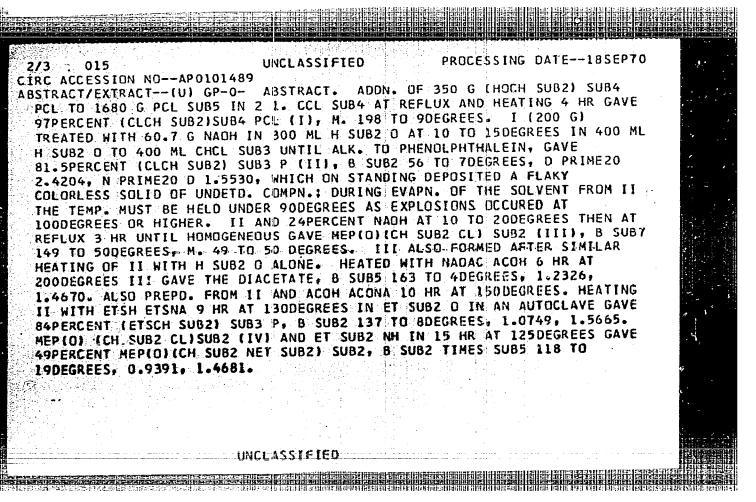
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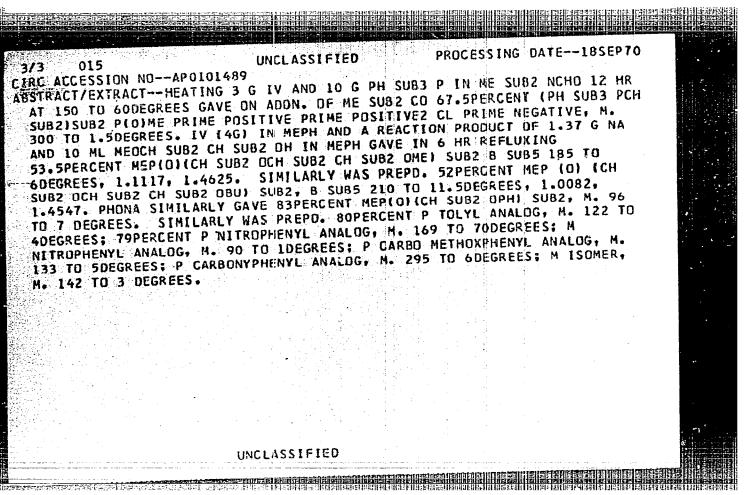
- 49 -

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410004-5"



UNCLASSIFIED PROCESSING DATE--18SEP70 1/3 - 015 TITLE-SYNTHESES BASED ON TETRAMETHYLOLPHOSPHONIUM CHLORIDE. SOME TRANSFORMATIONS OF TRISICHLORDHETHYL) PHOSPHINE AND AUTHOR-(05)-TSVETHKOV, YE.N., BORISOV, G., SIVRIYEV, KH., MALEYANNAYA, R.A. KABACHNIK. M.I. COUNTRY OF INFO-USSR SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2) 285-91 DATE PUBLISHED-----70 SUBJECT AREAS--CHEMISTRY TOPIC TAGS--CHEMICAL SYNTHESIS, ORGANIC PHOSPHORUS COMPOUND, CHLORINATED ORGANIC COMPOUND, THIOL CONTROL MARKING-NO RESTRICTIONS DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0079/70/040/002/0285/0291 PROXY REEL/FRAME--1985/1397 CIRC ACCESSION NO--APO101489 UNCLASSIFIED 





UDC 546.791.6.161

TSVETKOV, A. A., SELEZNEV, V. P., SUDARIKOV, B. N., GROMOV, B. V., Moscow Institute of Chemical Technology imeni D. I. Mendeleyev

"Basic Uranyl Fluorides"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol XVIII, No 1, 1973, pp 12-15

Abstract: The possibility of the formation of the basic salt of uranyl fluoride was demonstrated by Marshall, et al. [J. Amer. Chem. Soc., No 76, 4279, 1954] when studying the phase diagram of the uranyl fluoride and water systems. Yu. A. Buslayev, et al. [Dokl. AN SSSR, No 148, 832, 1963] detected the existence of hydrated hydroxofluoruranyl which precipitates as the equilibrium bottom phase in the range of 0.59-8.39% by mass of HF. In the present work, the differential thermal analysis method was used in combination with chemical and x-ray phase analysis to demonstrate the existence of two separate hydrates of the basic salts of variable composition in the UO<sub>3</sub>-HF-H<sub>2</sub>O system: 1) UO<sub>2</sub>(CH)<sub>x</sub>F<sub>2-x</sub>·2H<sub>2</sub>O and UO<sub>2</sub>(OH)<sub>x</sub>F<sub>2-x</sub>·H<sub>2</sub>O where x = 0.3-1.2. A study was made of the structure of the salts, and some of their thermodynamic characteristics were determined. The thermogravimetric curve of the decomposition of UO<sub>2</sub>(OH)<sub>x</sub>F<sub>2-x</sub>·2H<sub>2</sub>O and tabulated data for the analysis of the basic salts of uranyl fluoride are presented. The heats of formation and the isobaricisothermal potentials of the formation of the basic salts of uranyl fluoride and their errors are also calculated.

USSR

UDC 546.791.6'161-31'

TSVETKOV, A. A., SELEZNEV, V. P., SUDARIKOV, B. N., GROMOV, B. V., and PEGANOV, V. A., Moscow Chemical-Technological Institute imeni D. I. Mendeleyev

"Complex Compounds of Uranyl Fluoride With Water and Hydrogen Fluoride"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 16, No 3, Mar 71, pp 768-771

Abstract: Three complex uranyl fluoride compounds were isolated in the system  ${\rm UO}_2{\rm F}_2-{\rm HF}-{\rm H}_2{\rm O}$ :  ${\rm H}_2[{\rm UO}_2{\rm F}_4]\cdot 4$   ${\rm H}_2{\rm O}$ ,  ${\rm H}[{\rm UO}_2{\rm F}_3]\cdot 2$   ${\rm H}_2{\rm O}$ , and  ${\rm H}[({\rm UO}_2)_2{\rm F}_5]\cdot 4$   ${\rm H}_2{\rm O}$ . All of these materials form salts with alkali metals and ammonia; their structures were studied. Thermodynamical properties of these compounds were determined by means of differential thermal analysis.

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USSR

UDC 621,396,6-181,48

PARECHIN, V. I., TSVETKOV, A. F.

"Synthesis of Tolerances in Hybrid Film Microcircuits"

V sb. Metody mat. i fiz. modelir. i optimiz. parametrov radioelektron. apparatury. No 1 (Methods of Mathematical and Physical Simulation and Optimization of the Parameters of Radio Electronic Equipment. No 1 -- collection of works), Moscow, 1972, pp 41-42 (from RZh-Radiotekhnika, No 7, Jul 72, Abstract No 7V253)

Translation: The combined method of synthesizing tolerances using iteration calculations for applying additional relations to the parameters is discussed briefly. The solution of the problem is simplified as a result of the presence of strong correlations between the parameters of the elements. This permits designation of identical tolerances for such elements. The tolerances on the groups of parameters are selected as a function of their partial effect on the output parameter. The problem of synthesis of the tolerances on the tuned elements is solved by recalculating the generalized influence coefficient and by the iteration method.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410004-5"

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USSR

UDC: 621.396.96.01

TSVETKOV, A. G.

"Principles of Quantitative Evaluation of the Effectiveness of Electronic Radio Facilities"

Printsipy kolichestvennoy otsenki effektivnosti radioelektronnykh sredstv (cf English above), Moscow, "Sov. radio", 1971, 201 pp, ill. 63 k. (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6G4 K)

Translation: The book presents the principles of quantitative evaluation of the effectiveness of electronic radio facilities. The basic indices used as criteria in evaluating their effectiveness are considered. Relationships for determining these indices are presented as applied to certain types of radio facilities. Considerable attention is given to problems of evaluating the effectiveness of electronic radio facilities with regard to their actual reliability and possible counteraction. The book is written for specialists working in the areas of design and use of these facilities. Twenty illustrations, three tables, bibliography of nineteen titles. Annotation.

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UDC 621.771.064

USSR

NIKITIN, G. S., ZHUCHIN, V. N., KAPUSTIN, V. A., YEVSTROPOV, G., M., and TSVETKOV, A. I., Moscow Higher Technical School imen: Bauman, and the "Elektrostal" Plant

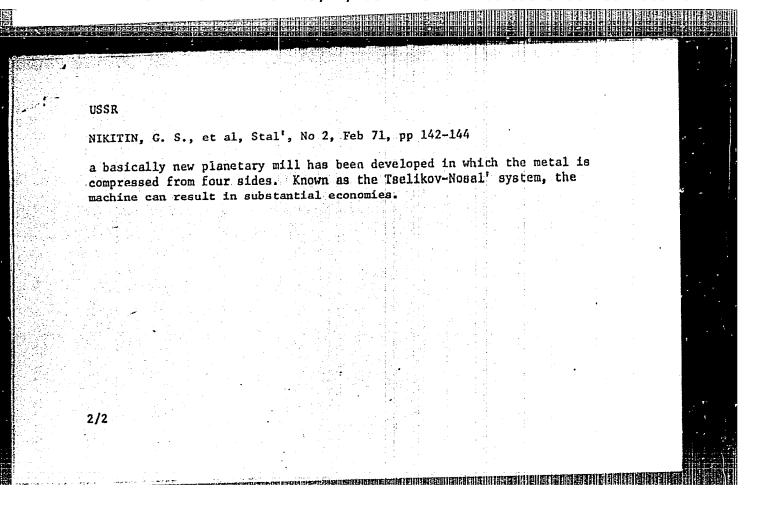
"Rolling Deformation-Resistant Steels and Alloys in a Planetary Mill"

Moscow, Stal<sup>1</sup>, No 2, Feb 71, pp 142-144

Abstract: This paper describes planetary milis which are now being combined with ingot-producing mills for continuous and integrated casting and rolling processes. The input to the planetary mill, used for the rolling part of the combined operation, can be fed in a continuous ingot from the crystallizer at the rate of 2.0-3.5 meters per minute. Among other advantages, the planetary mill can be fully automated, requiring one complex control system for regulating the production rate, and can be used for rolling deformation-resistant steels in a narrow temperature interval. Several of these mills are in operation in foreign countries but are used only for rolling. In the VNIIMETMASH (All-Union Scientific Research and Planning Design Institute of Metallurgical Machine Building)

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410004-5"



USSR

TSVETKOV, D., and POPOV, T.

"The Effect of High Frequency General Vibration on the Activity of Some Enzymes Participating in Biological Oxidation -- in the Experiment With Cytochromoxidase, Catalase, Peroxidase"

Zh. Gigiyeny, Epidemiol., Mikrobiol., i Immunol. (J. of Hygiene, Epidemiology, Microbiology and Immunology), 1973, Vol 17, No 2, pp 157-162 (from RZh - Biologicheskaya Khimiya, No 22, Nov 73, Abstract No 1412)

Translation: The effect of general high frequency vibrations (150 hc) on cyto-chromoxidase, peroxidase, and catalase in liver and blood has been studied in experiments on rats. It has been established that as a result of the action of the vibration for 1 hr per day for 45 days, the activity of the above erzymes the vibration for 1 hr per day for 45 days, the changes being unstable, exundergoes an early change — at 15 to 30 day, the changes being unstable, exhibiting a tendency to return to normal even with prolonged exposure. The changes in the enzyme activity indicate some acceleration in biooxidation.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410004-5"

USSR UDC 621.317.757

RYZHOV, V. P., CHERNYSHEV, V. M., and TSVETKOV, E. A.

"Analysis of the Spectra of Signals With Respect to Khaar's Functions"

Tr. Taganrog. radiotekhm. in-ta (Works of the Taganrog Radio-Engineering Institute), 1972, vyp.28, pp 15-21 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A286)

Translation: The authors note the advantages of the orthogonal expansion of signals which are realized by a unit based on pulse technology elements, for example according to Khaar's functions, in comparison to the known orthogonal expansions according to the functions of Laguerre, Legendre, and Bessel. It is shown that the technique for the realization of orthogonal analyzers operating according to Khaar's functions is accomplished on the basis of electronic keys which are controlled by rectangular voltages. The use of high-speed, pulsed units and careful execution of electronic keys, integrators, and readout circuit makes it possible to obtain an error which has been brought close to that of the value for the maximum coefficient of expansion and does not exceed a percentage fraction in the frequency range up to hundreds of kilocycles. The possibility of electronic retuning of the studied analyzers makes it possible to utilize them in the production of adaptive systems for measurement, control, and automatic control. A.K.

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USSR

TSVETKOV, E. I.

"Unstable Random Processes and Their Analysis"

Nestatsionarnyye Sluchaynyye Protsessy i Ikh Analiz. [English Version Above], Moscow, Energiya Press, 1973, 129 pages (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V222K, from the Annotation).

Translation: This book presents a systematic analysis of the principle properties of unstable random processes and methods of measurement of thier probabilistic characteristics. The greatest attention is given to analysis of operators for estimation of the probabilistic characteristics and structural plans of devices performing these operations. The methodological errors in measurement and their relationship to the type of process, type of characteristic measured and type of operator are studied.

The book is designed for specialists working in the area of electrical measurements, electronic measurements, communications, statistical electronic engineering, automation, meteorology, analysis of microstructures and other areas related to studies of unstable random processes.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410004-5"

USSR

TSVETKOV, E. I.

"Correlation Analysis of Unstable Random Processes"

Metody Predstavleniya i Apparaturn. Analiz Sluchayn. Protsessov i Poley. 3-y Vses. Simpozium. Sekts. 1 [Method of Representation and Hardware Analysis of Random Processes and Fields, Third All-Union Symposium, Section 1 -- Collection of Works], Leningrad, 1970, pp 3-13, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V200 by V. Noskov).

Translation: This review article is dedicated to methods of production of estimates of correlation functions of unstable random processes. Let  $x_i$  (i = 1, 2,

..., N) be the centered realizations of random processes. Three types of estimates are discussed:

- 1) t-current  $R_{x}^{*}(t,\tau) = \frac{1}{N} \sum_{i=1}^{N} x_{i}(t) x_{i}(t-\tau) dt$ , 2) k-current  $R_{x}^{*}(k,\tau) = \frac{1}{T} \int_{\tau}^{T+\tau} x_{k}(t) x_{k}(t-\tau) dt$ , 3) mean  $R_{x}^{*}(\tau) = \frac{1}{NT} \int_{\tau}^{T+\tau} \sum_{l=1}^{N} x_{i}(t) x_{l}(t+\tau) dt$ .

The problem of introducing weight functions to operators 1 and 2, allowing the measurement error to be decreased is studied. Various generalizations of the concept of the correlation interval to cover cases of unstable processes are 1/2

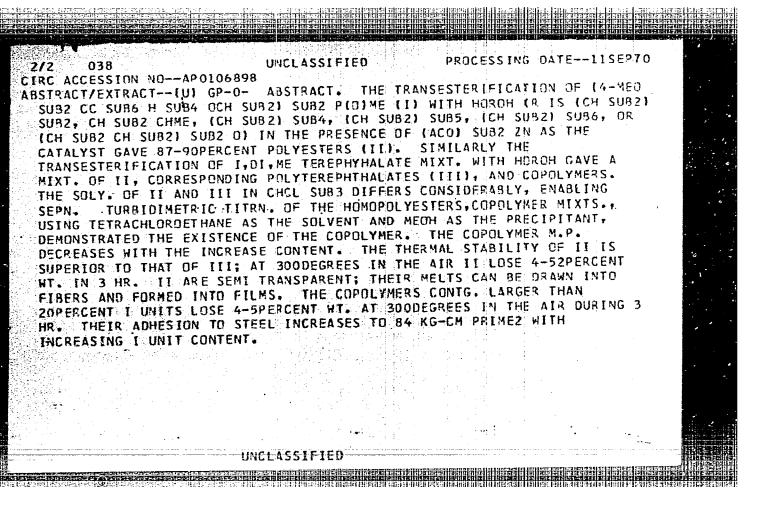
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USSR
Métody Predstavleniya i Apparaturn. Analiz Siuchayn. Protsessov i Poley. 3-y
Vses. Simpozium. Sekts. 1, Leningrad, 1970, pp 3-13.

discussed. The class of random processes with stable increments and locally
stable processes introduced by Silverman, characterized by the fact that the
stable processes introduced by Silverman,  $\operatorname{characterized}$  by the fact that the
t-current correlation function is  $R_x(t,\tau) = R_x \left(t - \frac{\tau}{2}, 0\right) \rho_x(\tau)$  are analyzed. It
is demonstrated that processes of this type with normal distribution can be
modeled by the standard method. 18 Biblio. Refs.

UDC: 621.391.8:519.27 USSK TSVETKOV, E. I. "Problems of Measuring the Statistical Characteristics of Random Processes" Dokl. Vses. nauchno-tekhn. korferentsii po radiotekhn. izmereniyam. T. 3 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 3), Novosibirsk, 1970, pp 67-69 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12/156) Translation: The author discusses the principles of measuring the statistical characteristics of random processes as applied to two problems -- measurements involved in investigating the properties of an object for purposes of developing a model of that object, and measurements necessary for solving technical problems (process control, signal detection against a background of noise, etc.). The most pressing problems in both areas are discussed. It is noted that the present state of development in these areas is inadequate, and that new ways must be found to solve the problems involved. N. S. 1/1 101 -

PROCESSING DATE--11SEP70 TITLE--POLYMERS PREPARED FROM BIS (4, CARBOXYPHENOXYMETHYL) (METHYL) PHOSPHINE UNCLASSIFIED AUTHOR-BORISOV, G., SIVRIEV, KHR., TSVETKOV, E.N., KABACHNIK, M.I. COUNTRY OF INFO--USSR SOURCE--VYSOKOMOL. SOEDIN., SER, A 1970, 12(3) 620-5 DATE PUBLISHED-----70 SUBJECT AREAS--CHEMISTRY, MATERIALS TORIG TAGS--POLYMER, ESTERIFICATION, ORGANIC PHOSPHORUS COMPOUND, CARBOXYL RADICAL, BENZENE DER IVATIVE, POLYESTER RESIN. PHTHALATE, THERMAL STABILITY, ADHESION, METAL TO NONMETAL BONDING CONTROL MARKING--NO RESTRICTIONS STEP NO--UR/0459/70/012/003/0620/0625 DOCUMENT CLASS--UNCLASSIFIED PRNXY REEL/FRAME--1989/0242 CIRC ACCESSION NO--APO106898 UNCLASSIFIED 



USSR

UDC 533.697

TSVETKOV F F, KERIMOV, R. V.

"Results of Measurements of Hydraulic Resistance in the Motion of Dusty Air In Tubes"

Tr. Mosk. enegr. in-ta (Works of Moscow Power Engineering Institute), 1971, No. 81, pp 27-32 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9B327)

Translation: The resistance in the ascending motion of a suspension of graphite particles of diameter 230  $\mu$  was studied experimentally in a tube of diameter 18.8 mm over a segment of length 1880 mm. The resistance was determined by measuring the pressure drops over the length of this segment. The flow rate of the air varied from 4.9 to 20 m/sec and the Reynolds number varied from 6.5·10³ to 32·10³. The mass emission concentration K varied from 1 to 15. Almost linear relationships  $\Delta p/\Delta p_0(K)$  were obtained, the slope of which drops considerably with the rise in Reynolds number. The effect of the Reynolds number is explained on the basis of a measurement with the aid of a specially developed photoelectric system of the velocity of the front of the particles suspended in the ascending gas flow. A. S. Malyutin.

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USSR

UDC 533.69.01+533.662.013

#### TSVETKOV, L. G.

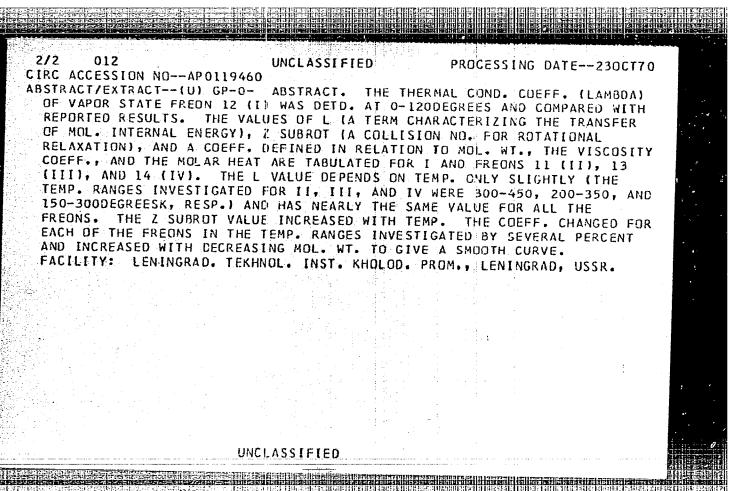
"Approximation Method for Calculating Aerodynamic Load Over a Lcw-Flying Wing With a Fuselage"

Tr. Leningr. korablestroit. in-ta (Works of Leningrad Shiphuilding Institute), 1970, No. 69, pp 111-121 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9B240)

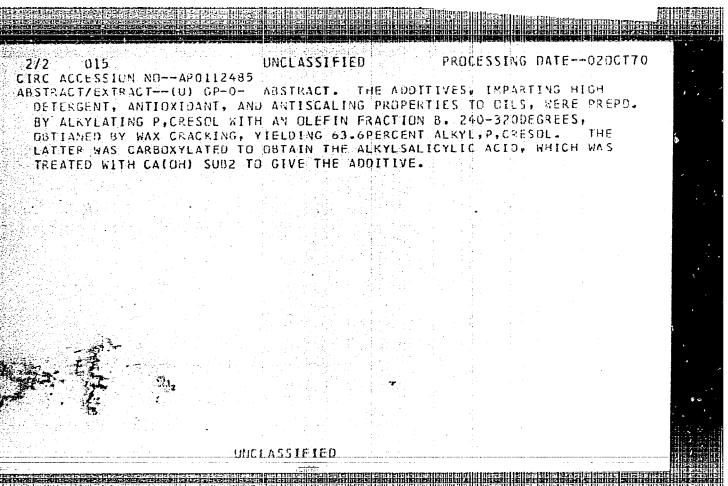
Translation: A technique is proposed for the numerical calculation of the aerodynamic load distribution over a wing under uniform motion of a wing with an angle of sweepback and an angle of heel and with a fuselage in the form of an infinite circular cylinder and a zero angle of attack over a solid screen. The wing is modeled by a system of discrete oblique horseshoe-shaped vortices. Calculations of the rectangular wing with an aspect ratio  $\lambda=2$  without an angle of the and with a fuselage of the midwing monoplane design were made by this method on the "Minsk-1" computer, varying the radius of the cylinder and the distance of the axis of the fuselage from the screen. A scheme with 18 vortices was selected. The calculations showed that the fuselage has a considerable effect on the distribution of aerodynamic load along the wing. This effect was especially great in the motion of the system close to a solid screen. A. V. Krasil'nikov.

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1/2 UNCLASSIFIED PROCESSING DATE--230CT70 TITLE--THERMAL CONDUCTIVITY OF SUPERHEATED VAPORS OF METHANE SERIES FREONS -U- , AUTHOR--TSVETKOV, O.B. COUNTRY OF INFO--USSR SOURCE--KHOLOD. TEKH. 1970, 46(12), 21-4 DATE PUBLISHED ---- 70 SUBJECT AREAS -- CHEMISTRY TOPIC TAGS -- METHANE, FREUN, THERMAL CONDUCTIVITY CONTROL MARKING--NO RESTRICTIONS DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1997/0541 STEP NO--UR/0066/70/046/012/0021/0024 CIRC ACCESSION NO--APOL19460 UNCLASSIFIED



UVCLASSIFIED TITLE--SYNTHESIS OF ALKYLSALICYLATE ADDITIVES BASED ON P.CKESOL -U-PROCESSING DATE--020CT70 AUTHOR-(05)-MONASTYRSKIY, V.N., TSVETKOV, U.N., DMITRIYEVA, N.A., KAZAKOV, COUNTRY OF INFO--USSR SGURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(3), 17-19 DATE PUPLISHED----70 SUBJECT AREAS -- CHEMISTRY, MATERIALS TOPIC TAGS--SALICYLATE, ALKYLATION, CRESOL, PETROLEUM FRACTION, CHEMICAL SYNTHESIS, ANTIOXIDANT ADDITIVE, DETERGENT ADDITIVE CONTROL MARKING-NO RESTRICTIONS DOCUMENT CLASS--UNCLASSIFIED PRUXY REEL/FRAME--1992/1491 STEP NO-HUR/0065/70/015/003/0017/0019 CIRC ACCESSION NO--AP0112485 UNCLASSIFIED 



USSR TSVETKOV, V., Deputy Chief, Computing Center of the Statistical Adminis-"On Programming Systems for 'Minsk'-Type Computers" Moscow, Vestnik Statistiki, No 12, Dec 71, pp 42-45 Abstract: The paper reviews various operational systems for controlling statistical data processing on the "Minsk" computer series by a systems approach. The ISE-2 economy integrating system is used with the Minsk-22 computer with subprograms for input, checking, packaging, sorting, punchcard output, wide-tape printout, etc. Operation of the program is directed by the "Dispatcher" controlling program. The SSK symbolic coding system is a further development of the process of automating passage of a problem through the computer. This system functions on several stages: programming, keypunching, translation, debugging, and calculation. The SAOD automatic data processing system based on COBOL is used for automating the programming of problems in analysis of economic information. The IFVE-68 monitoring system is employed for automating manual work in pro-1/2

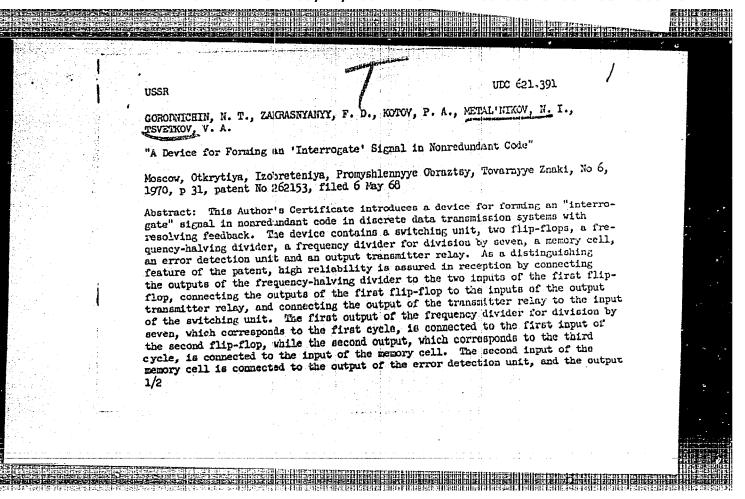
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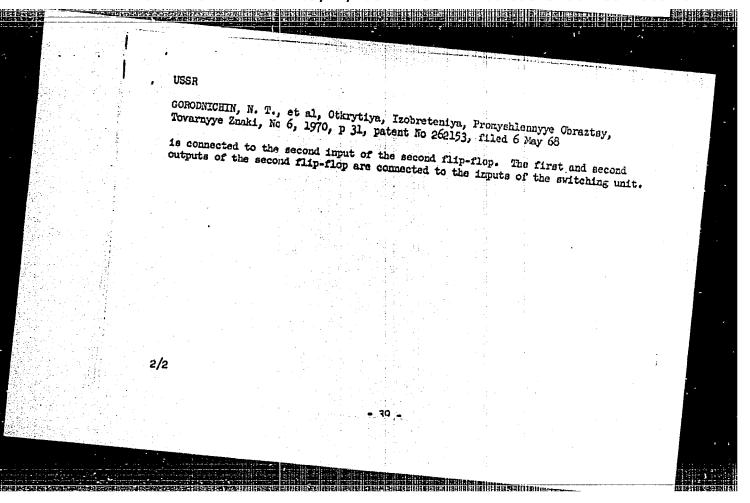
TSVETKOV, V., Vestnik Statistiki, No 12, Dec 71, pp 42-45

gramming work in FORTRAN. This is a standardized set of programs. Core memory resident routines in the Minsk line are: 1) minimization of operator actions at the control panel; 2) program translation and detection of errors in the programs; 3) analysis of the causes for failures in the computer system; 4) organization of non-stop operation of the computer in the "Automatic" mode; 5) execution of a number of secretary functions. A brief description of the Minsk-32 computer system is given. This is the latest addition to the "Minsk" line. The software of the new system is compatible with the "Minsk-22" and the "Minsk-22M" systems. Some of the problems which must be solved for further development of operational systems are discussed.

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USSR

TSVETKOV, V. D.

"Structure and Processes of Functioning of Self-Organizing Automatic Planning Systems"

Vychisl. Tekhn. v Mashinostr. Nauch.-Tekhn. Sb. [Computer Equipment in Machine Building Scientific and Technical Collection], June 1972, pp 62-72 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V718).

Translation: Problems of automatic planning of complex products and technological processes are studied. Models of multilevel processes for planning with heuristic criteria for self-selection of efficient decisions at each level are developed. An iterative algorithm for planning is described, allowing successive improvement of the initial version to the required stage of Author's view

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- 68 -

-73VET	Konol, B. A. Konledeva, G. H.	,	A Knoatkin, V. S. Khokhlova, G. K.	Gnnassi, Ye. E.	Domareva, O. P.	Dmfrifyeva, V. A.	Busel, Ye. p.			These personalities, the subjects of below:	articles, it was possible to the state of Bi	(U) During this quarter)	None: Institute of Biothysics, Pu		UNC
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	•	tology at the	Slozhenikina v	<b>.</b> .	radiation and vibration. In	ory of Cell Biophysics	1971 (42)	•		1970(35)	,	1971 (49)	1970(51)	. 1971 (49)	1971 (44)		1970(47)	

USSR

UDC 597.0/5-15

TSVETKOV, V. I., Laboratory of the Behavior of Lower Invertebrates, Institute Of Evolutionary Morphology and Ecology of Animals imeni A. N. Severtsov,

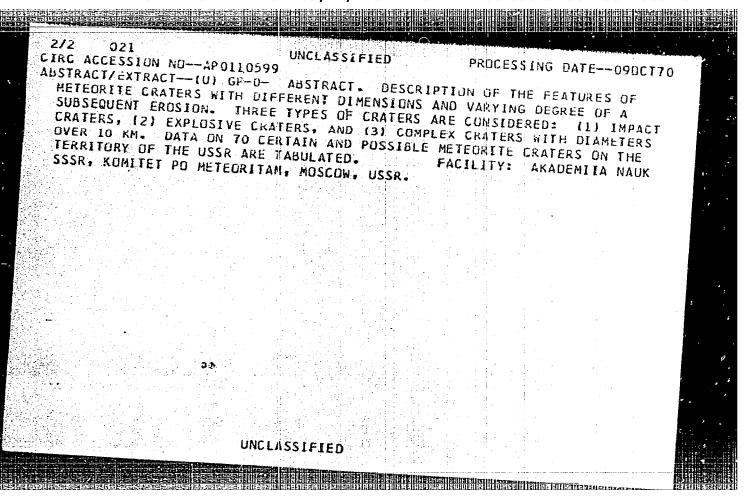
"The Role of Sense Organs in Adaptation to Changes in Hydrostatic Pressure by the Ninespine Stickleback Pungitius pungitius L."

Moscow, Voprosy Ikhtiologii, Vol 13, No 2, 1973, pp 344-349

Abstract: The compression and decompression of the swimbladder of the ninespine stickleback in relation to the external hydrostatic pressure were investigated. The length of the time of compression or decompression was determined by the method proposed by F. A. Brown (Biol. Bull., Vol 71, No 1, 1939). Placing the fish in complete darkness did not alter the rate of compression and decompression. In experiments in which the fish were placed into a shallow layer of water with a depth only slightly greater than the fishes' body height, so that visual and tactile signals were stabilized, compression and decompression were greatly slowed down but not eliminated. The results indicated that the pressuresensitive interoreceptors of the swimbladder bring about the regulation necessary for adaptation to changes in external pressure.

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1/2 021 TITLE-SEARCH FOR METEORITE CRATERS ON EARTH -U-PROCESSING DATE-090CT70 AUTHOR-(02)-ZOTKIN, I.T., TSVETKOV, V.1. COUNTRY OF INFO-USSR SOURCE-ASTRUNOMICHESKII VESINIK, VOL. 4, JAN.-MAR. 1970, P. 55-65 DATE PUBLISHED----70 SUBJECT AREAS—ASTRONOMY, ASTROPHYSICS, EARTH SCIENCES AND OCEANOGRAPHY TOPIC TAGS-METEORITE, EARTH PLANET, CRATERING CONTROL MARKING-NO RESTRICTIONS DUCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1991/0878 STEP NO--UR/0454/70/004/000/0055/0065 CIRC ACCESSION NU-APULL0599 UNCLASSIFIED



TOPIC TAGS—METEORITE, EARTH PLANET, CRATERING

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

CONTROL MARKING—NO RESTRICTIONS

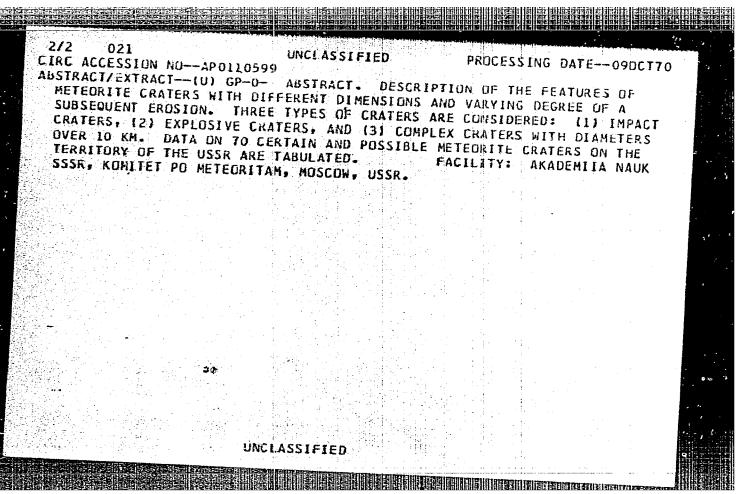
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Nuclear Science and Technology

USSR

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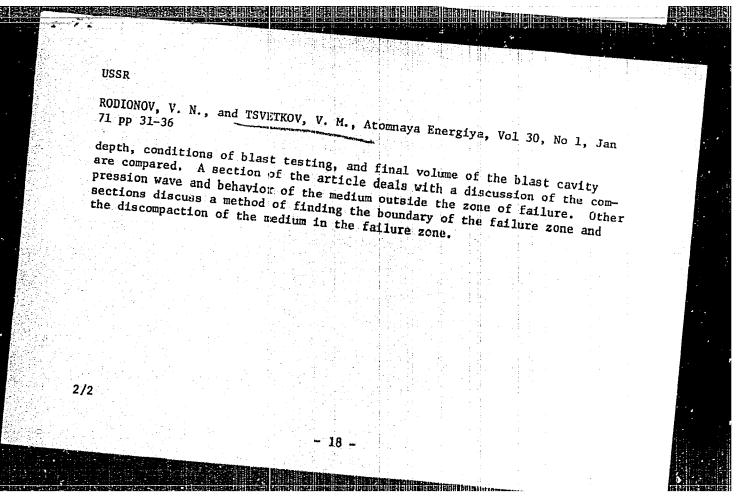
RODIONOV, V. N., and TSVETKOV, V. M.

"Some Results of Observations in Underground Nuclear Blasts"

Moscow, Atomnaya Energiya, Vol 30, No 1, Jan 71, pp 31-36

Abstract: The mechanical effect of an underground nuclear blast is characterized by the parameters of the irradiated waves and by the sizes of the areas of the irreversibly deformed medium: cavity volume, dimensions of the crushed zone, and discharge cone. Experimental determination of the maximum volume of the cavity, which may be notably different from the final volume, and determination of the size of the rupture zone pose great difficulties. At the same time these parameters are essential for evaluating the output energy in a seismic wave.

It is deemed very important to use information contained in the compression wave in direct proximity to the failure zone for determining the parameters of the irreversible deformation of the medium in underground blasts. A comparison was made of two American underground blasts and one Soviet underground blast which all occurred in rock salt strata. Blast energy, blast 1/2



USSR

UDC 548.0:532.783

RYUMISEV, Ye. I., KOVSHIK, A. P., KOLOMIYETS, I. P., TSYETKOV, V. N., Physics Institute, Leningrad State University

"Anisotropy of Molar Refraction of Liquid-Crystal Alkoxybenzoic Acids"

Moscow, Kristallografiya, Vol 18, No 6, Nov/Dec 73, pp 1246-1249

Abstract: The prism refractor method is used to measure the indices of refraction of nematic and amorphic liquids of a homologous series of alkoxybenzoic acids. The values of molar refraction and its anisotropy are calculated for each homolog in the entire region of existence of the nematic phase. The resultant relations for refraction anisotropy as a function of the structure of the molecules are explained by the effect of flexibility -- a phenomenon which is well known for chain molecules.

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CIA-RDP86-00513R002203410004-5" APPROVED FOR RELEASE: 09/17/2001

USSR

UDC · 532.783

TSVETKOV, V. N., Corresponding Member of the USSR Academy of Sciences, RYUMTSEV, Ye. I., KOLOMIYETS, I. P., KOVSHIK, A. P., Leningrad State Uni-

"Concerning the Macroscopic Equivalence and Difference of Molecular Mechanisms of the Orienting Action of Electric and Magnetic Fields on Nematic

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 4, 1 Aug 73, pp 821-824

Abstract: The electric-to-magnetic susceptibility anisotropy ratios were measured by the crossed-field method on a frequency of  $\nu = 7 \cdot 10^5$  for several liquid crystals, and the permittivities parallel and perpendicular to the axis of nematic order were determined by the method of capacitance on the same frequency. In addition, the diamagnetic anisotropy was measured on the same substances. The resultant experimental data show that anisotropy of retardation of molecular rotation reduces the dielectric anisotropy of positively anisotropic liquid crystals and increases the anisotropy of negatively anisotropic crystals. When the dipole moment is fairly high, dispersion may change the sign of electric susceptibility anisotropy in a crystal with positive dielectric anisotropy.

USSR

TEVETKOV, V. N. Corresponding Member of the Academy of Sciences of the USSR, KOLOMITETS, I. P., RYUMTEEV, Ye. I., and ALIYEV, S. M.

"A Potating Magnetic Field as a Method of Determining the Diamagnetic Anisotropy of Nematic Liquid Crystals"

Moscow, Doklady Akademii Nauk SSSR, Vol 109, No 5, 11 Apr 73, pp 1074 - 1077

Abstract: A liquid crystal subjected to a rotating magnetic field which is sufficiently strong and not rotating too rapidly experiences mechanical forces due to the rotation of the axis of nematic order in step with the magnetic field but lagging at some angle. Under ideal conditions it would be possible to determine the diamagnetic anisotropy by knowing the moment of mechanical rotation and the lag angle for a single value of magnetic field rotational speed. Attempts have been made to do this with a torsion balance, based on the fact that the mechanical moment reaches its maximum when the lag angle is equal to  $\frac{\pi}{L}$ .

This procedure is subject to errors because the macroscopic uniformity of the substance breaks down before the lag angle reaches this value. The authors have supplemented the procedure by observing the liquid crystal with polarized light. At extremely slow rotations the polarization is established so that the crystal is dark. As the lag angle increases, the light is permitted to pass; it is

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TeVETKOV, V. N., et al., Moscow, Doklady Akademii Nauk SSSR, Vol 109, No 5, 11 Apr 73, pp 1074 - 1077

extinguished by rotating the polarizing filters.

Both mechanical and optical measurements indicate that reliable values of lag can be determined only when the rotational speed is relatively low, before measurement of torque moment and phase lag provides a relable method of determining diamagnetic anisotropy.

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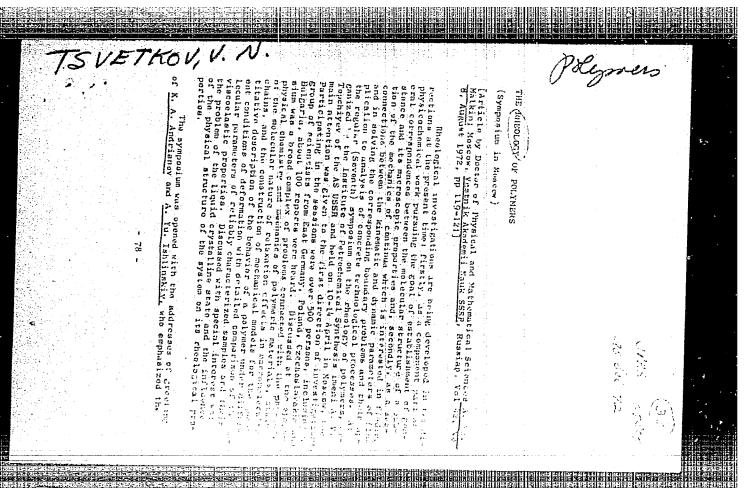
Molecular Physics

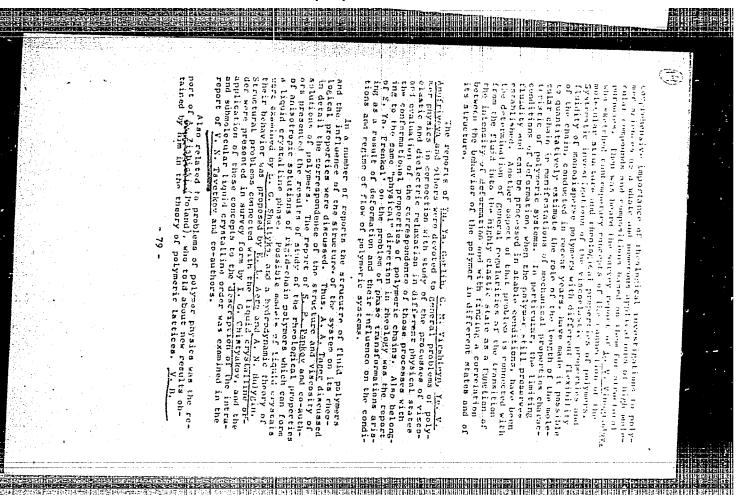
USSR

V. H. Corresponding Member of the USSR Academy of Sciences "Double Electrical Beam Refraction in Stiffly Linked Polymer Molecules"

Moscow, Doklady Akademii Nauk SSSR, vol 205, No 2, 1972, pp 328-

Abstract: Use of the electrooptical Kerr effect for investigating flexibly linked polymer molecules has proved pointless, while substantial, double electrical beam refraction has been detected in the balanced clockward and above the present paper, therefore, discusses the balanced electrooptical characteristics of linked, kinetically stiff macromolecules and the dependence of the Kerr constant on the length of the molecular chain. Beginning his analysis with an expression for the Kerr constant in a solution of stiff molecules with axially symmetrical, optical characteristics and with the dipole orientation typical of the observed electrooptical effect, the author obtains an expression for that part of the Kerr effect introduced by the longitudinal component of the monomeric dipole. The author is connected with the A. A. Zhdanov Scientific Research Physics Institute in Leningred.





### CIA-RDP86-00513R002203410004-5 "APPROVED FOR RELEASE: 09/17/2001

USSR

UDC 535.33/34:539.184

PETROV, E. V., and TSVETKOV, V. P., Kommunarsk Mining and Metallurgy Institute

"K-Spectrum Absorptions of Zirconium in ZrB2, ZrC, and ZrN Interstitial

Kiev, Metallofizika, No 40, 1972, pp 98-103

Abstract: K-spectrum absorptions were produced on an Olin spectograph by the method of Koshua. Exposures were made for the second order of reflection from the (1122) plane of a quartz crystal. The distortion function was equal to 4.5 ev. The spectra were calculated according to the close ordering theory. For estimating the varying scattering ability of the compound components, the parameter ng was introduced. It was shown that the value of this parameter for the investigated compounds coincides with the number of weakly bonded valency electrons of the atom. 3 figures, 1 table, 8 bibliographic references.

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USSR UDC: 535.33/.34:539.184

TSVETKOV, V. P., SAVCHENKO, N. D.

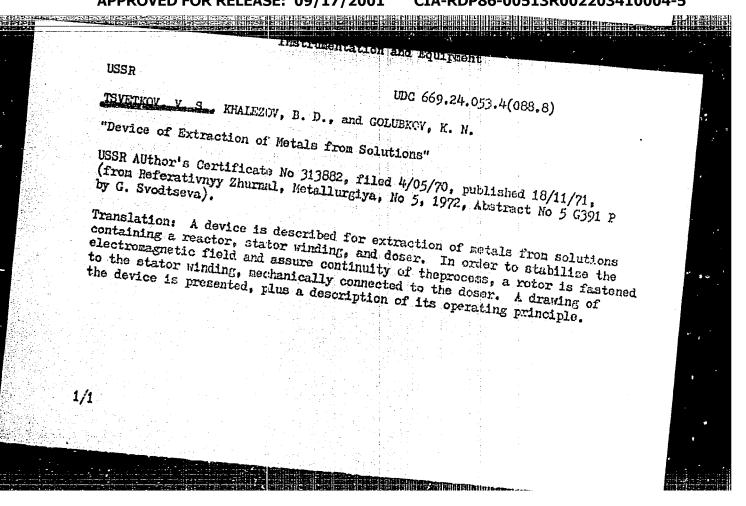
"Emission X-Ray K Spectra of Silicon in Chromium Silicides"

Khim. Svyaz' v Poluprovoden. [The Chemical Bond in Semiconductors -- Collection of Works], Minsk, Nauka i Tekhn. Press, 1969, pp 93-95 (translated from Referativnyy Zhurnal Fizika, No 6, 1970, Abstract No 6D342 by the authors)

Translation: K spectra of silicon are produced in pure silicon, CrSi, and CrSi2. Comparison of K  $_{\beta_{\rm X}}$  of pure silicon and chromium silicides indicates

that  $K_{\beta_X}$  is identical for the Si in pure silicon, CrSi, and CrSi. The semiconductor properties of chromium bisilicide may be a direct result of the presence of a partial covalent bond. Comparison of the structures of CrSi and CrSi. shows that the silicon atoms are identical in the first coordination sphere.

1/1



USSR

UDC 681.142.078

BERLINKOV, G. I., TSVETKOV, V. V.

"A Buffer Circuit"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 8, Mar 71, Author's Certificate No 296263, division H, filed 4 Dec 69, published 12 Feb 71, p 191

Translation: This Author's Certificate introduces a buffer circuit based on field-effect transistors with metal-dielectric-semiconductor (MDS) structure with induced channel. As a distinguishing feature of the device, power consumption is reduced and speed is increased by including two additional MDS transistors and an MDS capacitor in the circuit, the gates and sinks of both transistors being connected to the power supply bus, while transistors. One of the plates of the capacitor is connected to the sources of the and the other is connected to the gate of the transistor in the preceding stage.

1/1

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URITSKIY, V. Ya., TSVETKOV, V. V., YURCHENKO, Ye. P.

"To the Problem of Stability of Metal-Dielectric-Semiconductor Transistors"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic Technology. Scientific-Technical Collection. Microelectronics), 1970, Issue.

5(26), pp 154-156 (from RZh-Elektronika i yeye primeneniye, No 5, May 1971,

Translation: It is shown that the effect of migration of a negative charge on the outer surface of the oxide determines to a considerable degree the an increase of the residual current. However, with a specific construction of the Mos transistor, the migration of the negative charge does not affect

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USSR

UDC 629.78.018.1(088.8)

BOROG, V. A., SANKOV, Ye. I., ROKITYANSKIY, R. I., SOSUL'NIKOV, I. L., TSVETEOV YE

"Installation for Creation of an Air Stream"

USSR Author's Certificate No 309268, filed 20/05/66, published 3/09/71, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 2, 1972, Abstract No 2.41.132 P from the Resume).

Translation: This invention relates to equipment for aerodynamic research, namely installations for the creation of an air stream. Installations for the creation of an air stream are known, containing a platform and a nonmoving cover installed on the platform, forming an air channel together with an attached shaped nozzle fixed relative to it, in which there is a motor with a fan and a guiding grid. These installations do not allow aerodynamic loading of individual units of an assembled aircraft at various levels and at an angle to its primary planes. The installation suggested for the creation of an air stream differs from known installations in that the cover is fastened to the platform by hydraulic lifters allowing it to be moved forward and backward and rotated by a fixed angle in the vertical plane. Furthermore, the end portion of the cover is made with guides which rotate the attached hozzle around the axis of the air channel, while the device for fixation of the nozzle relative to the cover is equipped with a hydraulic drive. 2 Figures.

USSR MALEVANNAYA, R. A., TSVETKOV, YE. N., and KARACHNIK, M. I., Institute of Elementoorganic Compounds, Academy of Sciences USSR UDC 547.241 "Potassium Salts of Tetralkyldiamidophosphinylacetic Acids" Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 765-769 Abstract: Experimental procedures are given for the synthesis of the ethyl esters of tetramethyl- and tetraethyldimidophosphinyl acids via reaction (I)  $Cl_{2}P(0)CH_{2}COOC_{2}H_{2}\frac{R-CH_{2}}{R-CH_{2}}\frac{(R_{2}N)_{2}P(0)CH_{2}COOC_{2}H_{3}}{(R_{2}N)_{2}P(0)CH_{2}COOC_{2}H_{3}}$ The starting material was obtained via two methods (reactions II and III): (I)  $(\text{IIO})_2 P(0) \text{CH}_2 \text{COOH} \xrightarrow{\text{PCI}_3} \text{CI}_2 P(0) \text{CH}_2 \text{COOC} \xrightarrow{\text{C}_1 \text{H}_2 \text{OH} + \text{C}_2 \text{H}_2 \text{N}} \text{CI}_2 P(0) \text{CH}_2 \text{COOC}_2 \text{H}_3$  (II)  $(110)^{2} h(0) CH^{2}COOH \xrightarrow{CH'OH} (110)^{5} h(0) CH^{3}COOC^{3}H^{2} \xrightarrow{KOH}$  $\xrightarrow{\text{HO}} \text{P(O)CH}^{4}\text{COOC}^{5}\text{H}^{2} \xrightarrow{\text{ECI}^{4}} \text{Cl}^{4}\text{P(O)CH}^{2}\text{COOC}^{5}\text{H}^{2}$ (III) 1/2

USSR

MALEVANNAYA, R. A., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 765-769

The Cl<sub>2</sub>P(0)CH<sub>2</sub>COOC<sub>2</sub>H<sub>5</sub> was reacted with ethylmercaptan in the presence of triethylamine replacing both Cl. groups with (C<sub>2</sub>H<sub>3</sub>S). This compound underwent base hydrolysis according to formula IV to the potassium salt.

(C<sub>2</sub>H<sub>3</sub>S)<sub>2</sub>P(0)CH<sub>2</sub>COOC<sub>2</sub>H<sub>3</sub> KOH C<sub>2</sub>H<sub>3</sub>S P(0)CH<sub>2</sub>COOC<sub>2</sub>H<sub>3</sub> (IV)

Physical data, percent composition, NMR and IR constants are given.

USSR

UDC 547.241

TSVETKOV, YE. N., MAKHAMATKHANOV, M. M., LOBANOV, D. I., and KARACHNIK, M. I., Institute of Elementoorganic Compounds, Academy of Sciences USSR

"Electronic Influence of Phosphorus-Containing Substituents: The  $\sigma$  and  $\sigma$  m Constants for Dimethylphosphino-, Dimethylphosphinyl, dimethylethiophosphinyl, and Trimethylphosphonyl Groups"

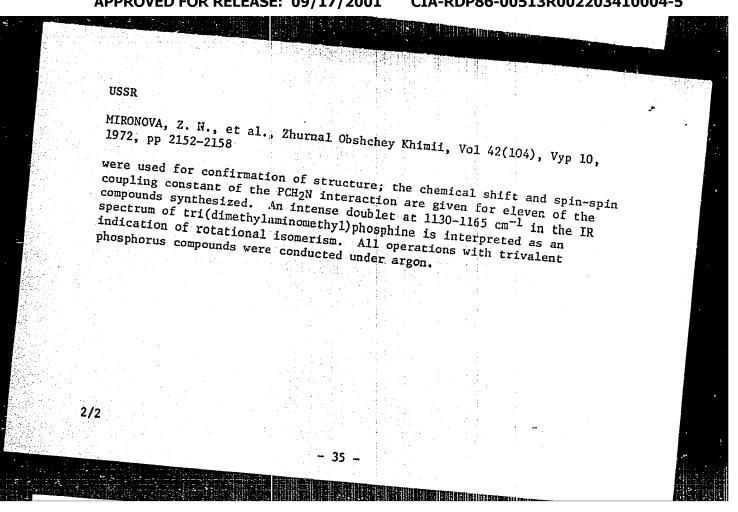
Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 769-779

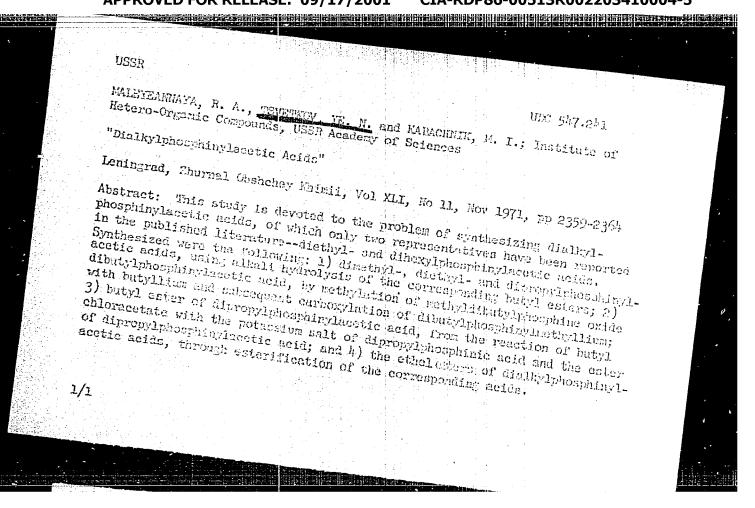
Abstract: The synthesis was reported for a number of phenol derivatives having the groups (CH<sub>3</sub>)<sub>2</sub>P, (CH<sub>3</sub>)<sub>2</sub>P(0), (CH<sub>3</sub>)<sub>2</sub>P(S), and CH<sub>3</sub>)<sub>3</sub>P+ in the meta and para positions. The electrophobic character (0 and 0 m) of each derivative was calculated. The ionization constant of each derivative was measured by potentiometric titration in water and in a 1:1 by volume mixture of othernol and water. The influence of the  $\sigma$ - and  $\sigma$ m on the pK<sub>n</sub> values (7.55 to 10.90) is essentially the same for all groups. The Bronsted equations describing the relationship between the pK for water and the pK for alcohol are given. The C-H vibrational frequencies were determined by IR; NMR spectra were also examined. All the data indicate that the studied substituents are N-acceptors and are directly related to reactive electron-donor centers.

1/1

USSR MIRONOVA, Z. N., TSVETKOV, Ye. N., NIKOLAYEV, A. V., and KABACHNIK, M. I., Institute of Inorganic Chemistry, Siberian Branch of the Academy of UDC 547.241 Sciences, USSR and Institute of Metalorganic Compounds, Academy of Sciences, USSR "Syntheses Based on Tetra(hydroxymethyl)phosphonium Chloride" Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, pp 534-538 Abstract: Reaction of tri(chloremethyI) phosphire with alkoxides of higher alcohols yields the oxides of methyldi(alkoxymethyl)phosphine which are effective extracting agents for uranium and thorium salts from sulfate solutions. It has been shown that the oxide of methyldi(methoxymethyl)phosphine reacts with potassium hydroxide at about 150°C aplitting along the phosphorus-carbon bond to yield methylmethoxymethylphosphinic acid. Higher homologues split at 200-250° forming the respective methylalkyl ether and a salt of methylalkoxymethylphosphinic acid. The acids were isolated in form of benzhydrylammonium salts. 1/1 30 .

USSR MIRONOVA, Z. N., TSVETKOV, YE. N., PETROVSKAYA, L. I., NEGREBETSKIY, V. V., NIKOLAYEV, A. V., and KABACHNIK, M. I., Institute of Inorganic Chemistry, Siberian Division, Academy of Sciences USSR, and Institute of Heteroorganic "Synthesis Starting With Tetraoxymethylphosphine Chloride; Aminomethylphosphines and Their Oxides" Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 1G, 1972, pp 2152-2158 Abstract: Eleven aminomethylphosphines, general formula RnP(CH2NR'2)3-n' were synthesized from tri(acetoxymethyl)phosphine, whose synthesis the authors have previously reported, and secondary amines in aqueous methanol in the presence of potassium hydroxide. This synthetic pathway is said to have fewer difficulties than those described previously, and to proceed via a saponification mechanism. The yield, boiling point, refractive index, density, observed and calculated molar refraction, percentages of C, H, and P, and formula are reported. Using hydrogen peroxide in acetone the phosphines were oxidized to their corresponding oxides. Several previous synthetic pathways are listed and some of the constants are reported for ten of these. Proton magnetic resonance and double resonance





USSR

UDC 547.241

PETROV, E. S., TSVETKOV, Ye. N., KABACHNIK, M. I. and SHATENSHTEYN, A. I., Institute of Physical Chemistry imeni L. Ya. Karpov and Institute of Elemento-Organic Compounds, Academy of Science SSSR

"Equilibrium CH-Acidity of Some Phosphine Oxides"

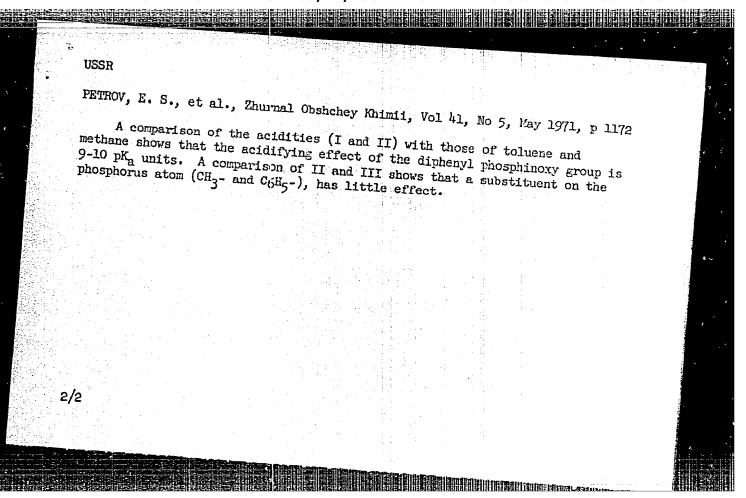
Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, p 1172

Abstract: In studying the equilibrium CH-acidity of organophosphorus compounds, spectrophotometry was used to determine the equilibrium constants (K) at 25° for the following reactions conducted in diethylene glycol solutions: diphenylbenzylphosphine oxide (I) with fluorenyl lithium, and diphenylmethyl phosphine oxide (II) and phenyldimethyl phosphine oxide (III) with triphenylmethyl lithium. The pK<sub>a</sub> was calculated from this data.

 $(C_6H_5)_2P(O)CH_2C_6H_5$  (I)  $2.1 \pm 0.3$  (7) 22.5  $(C_6H_5)_2P(O)CH_3$  (II)  $14 \pm 10$  (8) 31.3  $C_6H_5P(O)(CH_3)_2$  (III)  $6 \pm 0.6$  (4) 31.7

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USSR

UDC 547.29.118.07

TSVETKOV YE. N., MALEVANNAYA, R. A., OSIPENKO, N. G., and KABA-CHNIK, M. I., Institute of Organo Elemental Compounds, Moscov, Academy of Sciences USSR

"A Method of Producing Phosphinylcarboxylic Acids"

Moscow, Otkrytiya, Izobrenteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 17, 1970, Author's Certificate No 270730, filed 29 May 68, p 23

Abstract: This Author's Certificate introduces a method of producing phosphinylcarboxylic acids except for CL-phosphonylacetic acid. As a distinguishing feature of the patent, salts of trivalent phosphorus acids are intreacted with salts of halocarboxylic acids, except acetic, in the presence of heat with subsequent isolation of the goal product by conventional methods;

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USSR

UDC 547.241

TSWETKOV, Yo. N., and KABACHNIK, M. I., Institute of Element-Organic Compounds, Academy of Sciences USSR, Moscow

\*Conjugation in the Trivalent Phosphorus Series of Compounds\*

Moscow, Uspekhi Khimii. Vol 40, No 2, Feb 71, pp 177-225

Abstract: A review with 361 references. Trivalent phosphorus is usually considered as an analog of trivalent nitrogen with respect to its electronic effects. Recently it has been shown however that trivalent phosphorus containing substituents exhibit no T -donor effect which to some degree is typical of II or III period elements with unshared pairs of electrons. The trivalent phosphorus substituents manifest a M-acceptor effect, characteristic of the metaorienting group;, which is due to the interaction with vacant orbitals in the phosphorus atom. Trivalent phosphorus is thus incapable of p-K -conjugation in contrast to other II and III period elements with unshared electron pairs. The inability of the unshared pair in phosphorus to delocalize is due to its higher S-character; this is supported by the bond angles of its compounds. Physical and chemical properties of these compounds have been reviewed giving support to the hypothesis on the predominant Scharacter of unshared electron pair in trivalent phosphorus. 1/1

### CIA-RDP86-00513R002203410004-5 "APPROVED FOR RELEASE: 09/17/2001

